



A2A CCHP Series [Air-to-Air]

Models:

A2A200-T-LI
A2A540-D-LI
A2A600-V-LI
A2A610-V-VI

Residential Air-to-Air
Cold Climate
Air Source Heat Pumps

Installation & Maintenance Manual
Revision: 1.01

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Safety

Warnings, cautions and notices appear throughout this manual. Read these items carefully before attempting any installation, service or troubleshooting of the equipment.

DANGER: Indicates an immediate hazardous situation, which if not avoided will result in death or serious injury.

DANGER labels on unit access panels must be observed.

WARNING: Indicates a potentially hazardous situation, which if not avoided could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation or an unsafe practice, which if not avoided could result in minor or moderate injury or product or property damage.

NOTICE: Notification of installation, operation or maintenance information, which is important, but which is not hazard-related.

WARNING

Electric Shock Hazard

To avoid possible injury or death due to electrical shock, disconnect power during installation.

WARNING

Personal Injury And Unit Operation

Hazard- Failure to follow this warning may result in personal injury or death.

Relieve pressure and recover all refrigerant before system repair or final unit disposal. Use all service ports and open all flow-control devices, including solenoid valves.

WARNING

All refrigerant discharged from this unit must be recovered. To avoid release of refrigerant into the atmosphere, the refrigerant circuit of this unit must only be serviced by technicians who meet all required local and federal qualifications.

CAUTION

Do not use equipment for construction heating or cooling. Doing so will introduce construction dirt and debris, shortening equipment life and voiding motor and/or compressor warranty.

WARNING

Electrical Hazard

Electrical components may hold charge. To avoid possible injury or death due to electrical shock, DO NOT remove control box cover for 2 minutes after power has been removed from unit. Verify zero voltage at inverter connections shown on inverter cover.

CAUTION

CUT HAZARD! Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses, and gloves when handling parts and servicing heat pumps.

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General Information

Inspection

Upon receipt of the equipment, carefully check the shipment against the bill of lading. Make sure all the units have been received. Inspect the carton or crating of each unit, and inspect each unit for damage. Assure the carrier makes notation of any shortages or damage on all copies of the freight bill and completes a common carrier inspection report. Concealed damage not discovered during unloading must be reported to the carrier within 15 days of receipt of shipment. If not filed within 15 days, the freight company can deny the claim without recourse. Note: It is the responsibility of the purchaser to file all necessary claims with the carrier.

Storage

Equipment should be stored in its original packaging in a clean, dry area. Store units in an upright position at all times.

Unit Protection

Use shipping cartons, vinyl film, or an alternative form of covering that can adequately protect the unit on the job site. Open ends of piping should always be capped. Avoid causing physical damage to areas where painting, plastering, and/or spraying has not been completed. Take necessary precautions to avoid contamination by foreign materials. Physical damage and contamination may require the equipment to be cleaned or other costly repairs as this can prevent proper start-up.

Examine all pipes, fittings, and valves before installing any of the system components.

Remove any dirt or trash found in or on these components.

Pre-Installation

Installation, Operation and Maintenance instructions are provided with each unit. Be sure to completely read and understand these before beginning installation. The installation site chosen should include adequate service clearance around the unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Check the system thoroughly

before operation.

Prepare the units for installation as follows: Compare the electrical data on the unit nameplate with the ordering and shipping information to verify that the correct unit has been shipped.

Keep the cabinet covered with the shipping carton until the installation, plastering, painting, etc. is complete.

Check the refrigerant tubing. Ensure it is free of any dents or kinks, and verify that it is not in contact with any other parts in the unit.

Check wire harnesses and control wiring to ensure that plugs are securely seated and wires were not damaged during shipping.

Inspect all electrical connections. Connections must be clean and tight at the terminals.

Loosen compressor bolts on units equipped with compressor spring vibration isolation until the compressor rides freely on the springs. Remove shipping restraints.

NOTICE Failure to remove shipping brackets (if installed) from spring-mounted compressors will cause excessive noise, and could cause failure due to added vibration.

CAUTION

Do not store or install units in corrosive environments or in locations subject to temperature or humidity extremes (e.g. attics, garages, rooftops, etc.). Such conditions can significantly reduce performance, reliability, and service life of equipment.

CAUTION

Always move and store units in an upright position. Tilting units on their sides may cause equipment damage.

Strap equipment securely to appliance truck before moving. Denting bottom of unit from improper handling voids warranty for sheet metal parts. Improper handling will result in poor fit of doors and access panels.

A2A Series Heat Pump

Specifications

	Models								
	A2A200-2-LI ^a		A2A540-D-LI ^b			A2A600-VF-LI ^c			
									
Performance	A2A200-2-LI		A2A540-D-LI			A2A600-VF-LI			
Outdoor Temp.	8.3°C (47°F)	-8.3°C (17°F)	-25°C (-13°F)	8.3°C (47°F)	-8.3°C (17°F)	-25°C (-13°F)	8.3°C (47°F)	-8.3°C (17°F)	-25°C (-13°F)
Capacity (MBTU/hr)	19.5	14.7	11.7	14.8-47.9	10.7-34.5	6.7-21.5	28.7-55.8	23.5-45.	18-35
Capacity (kW)	5.7	4.3	3.4	4.3-14.0	3.1-10.1	2.0-6.3	8.4-16.4	6.9-13.2	5.3-10.3
System COP^A	2.9	2.4	1.8	3.2	2.7	2.2	3.3	2.6	1.9
HSPF Region 4^B	-		9.2			9.0			
HSPF Region 5^C	-		8.4			8.3			
Max. Air Flow	800 cfm (377.6 L/s)		1200 cfm (566.3 L/s)			1400 cfm (660.7 L/s)			
External Static	0.5" WC		0.5" to 1.5" WC			0.5" to 1.5" WC			
Cooling Capacity	Tons	1.5		4			5		
	kW	5.3		14.1			17.6		

PHYSICAL SPECIFICATIONS	A2A200-2-LI	A2A540-D-LI	A2A600-VF-LI
Voltage (V/PH/Hz)	230/1/60	230/1/60	230/1/60
Compressor LRA	90	134	136
Minimum Circuit Ampacity (A)	24	42	48
Maximum Fuse size	40	70	80
Weight – Indoor Unit (pounds)	90	180	180
Indoor Cabinet Dim(W x D x H)	24" x 25" x 27"	35" x 25" x 55.5"	26" x 26" x 66"
Single-zone Supply	18" x 18"	22" x 22"	22" x 22"
Multi-zoned Supply	N/A	10" dia. (2-4 zones)	10" dia. (2-4 zones)
Filter rack size (field supplied)	16x25	20x25	20x25
Return (W x H)	23" x 14"	23" x 18"	23" x 18"
Liquid Line Size O.D. (inches)	3/8	1/2	1/2
Vapour Line Size O.D. (inches)	5/8	3/4	3/4
Domestic Assist HX plumbing (inches)	1/2	1/2	1/2
Factory Refrigerant Charge (ounces)	45	100	105

Note: Performance data subject to change. Please refer to latest version at time of purchase. Performance values based on 21.1°C return air temperature and maximum fan speed. Heat pumps use variable capacity compressors and will adjust as need to meet demand. Capacity ranges shown are minimum and maximum at the rated outdoor air temperature.

A. Rated maximum COP within published operating range. Including all fans.

B. For Northern USA and ARI 240/210-2008 Standard (Region 4).

C. For Canadian climate and Canadian Energy Star (Region 5).

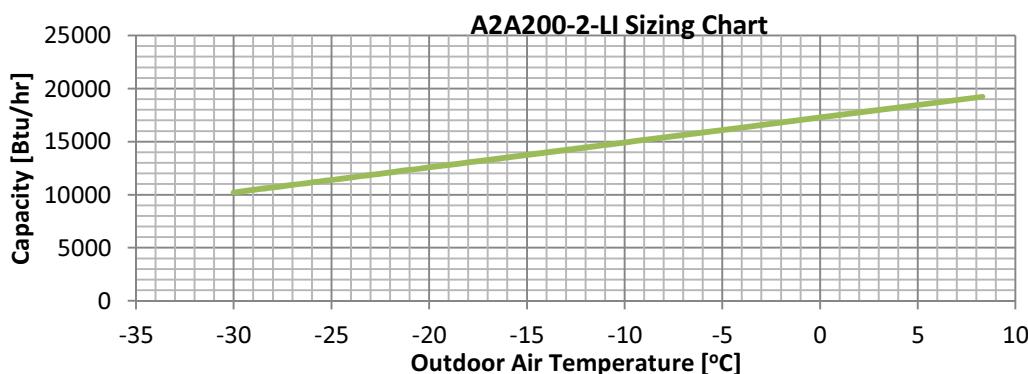
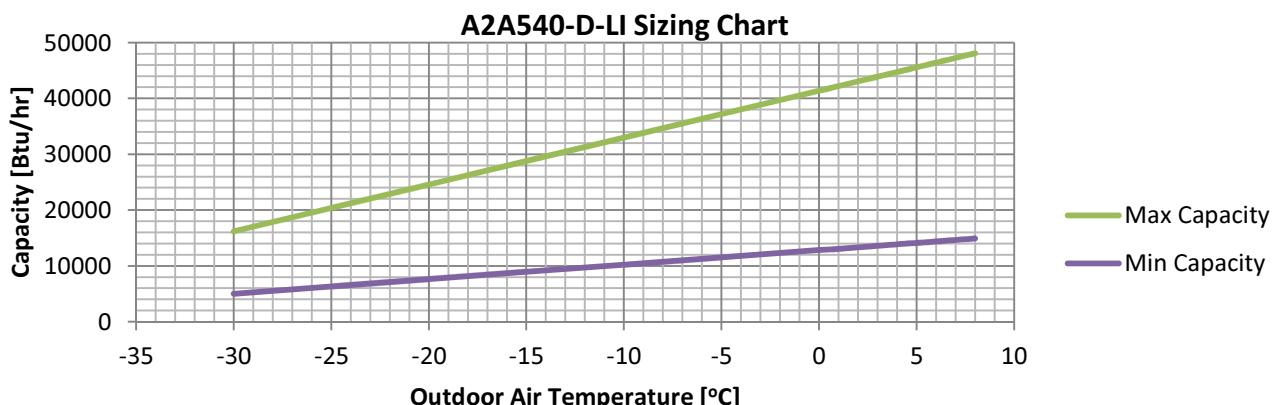
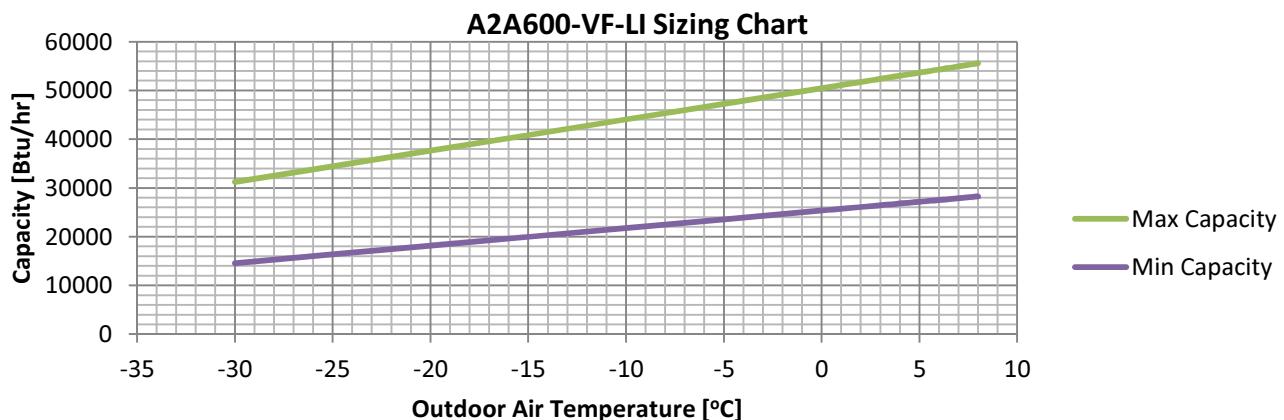
a. 2 Ton two-stage compressor with liquid injection

b. 4.5 Ton digitally variable flow compressor with liquid injection. 1 to 4 zones

c. 5 Ton variable frequency drive compressor with liquid injection, 1 to 4 zones

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Refer to name plate for specs on specific field unit. Equipment nameplate supersedes numbers published in this document.





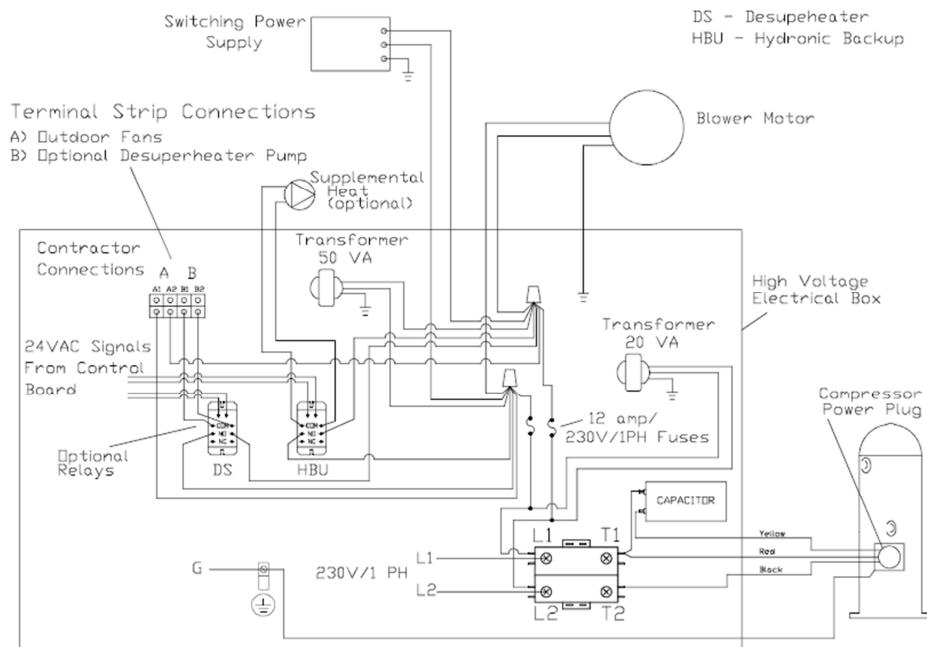
Typical Plumbing Connections

A2A540&600 with fossil fuel fired domestic back up and domestic assist

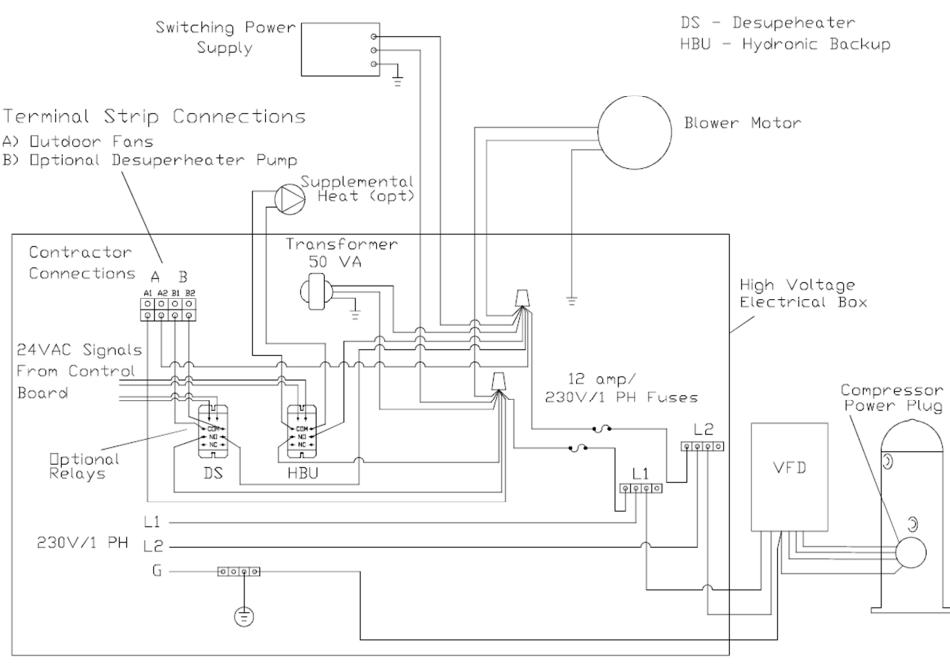
A2W540&600 with electric back up and domestic assist

Wiring Diagram

Power Wiring - A2A540-D



Power Wiring - A2A600-VF



A2A Series Heat Pump

The installation of air source heat pump units and all components, parts and accessories that make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the Installing Contractor to determine and comply with ALL applicable codes and regulations.

Introduction

The Ecologix Air to Water (A2A) Cold Climate Heat Pump (CCHP) is an innovative new product designed for Canadian winters. It is designed to heat and cool using various hydronic methods. Unlike conventional air source heat pumps, where capacity drops rapidly at lower

temperatures, the CCHP can operate efficiently at temperatures as low as -25°C. An air handler with up to four zones is integrated into the Air to Air CCHP to create a packaged unit that provides optimal comfort that is easy to install.

How It Works

The Air to Air CCHP uses heat pump technology to provide both forced air heating and cooling. The compressor is sized to efficiently provide heating for design temperatures as low as -25°C.

In all Ecologix Heat pump systems the compressor is inside. All controls and key control components are serviced from the heated mechanical room instead of at the outside unit as with most other vendor's heat pumps.

All systems are supplied with a domestic assist heat exchanger that allows recovery of compressor heat for use as preheating of domestic water. The pump and piping for the domestic assist can be installed with the equipment installation or can be left out or installed at a later date as a future enhancement.

The A2A540-V-LI product uses digital compressor technology to vary the capacity so that the system can closely match the house loads.

The A2A600-V-LI product uses a variable frequency driven compressor to vary the capacity so that the system can closely match the house loads.

For detailed instructions on using the user controller interface and explanation on the A2A CCHP program, refer to the Controls User Manual included with the product documentation.

Heating Mode

A call for heat will bring on the compressor and both the indoor and outdoor fans at speeds to closely match the current load on the home.

Cooling Mode

In cooling mode, the system reversing valve is engaged. The reversing valve directs the hot discharge refrigerant gas to the outdoor coil and the indoor water coil is chilled to produce cooling water for the conditioned space.

Outdoor Fan Motor Operation

The outdoor unit control energizes the two outdoor fans anytime compressor is operating. The outdoor fan remains energized if a pressure switch opens or compressor scroll over temperature should occur. The outdoor fans are EC motors that operate at varying speeds depending on the ambient air temperature and the demand. The maximum speed of the outdoor fans is adjustable from the HP control. Maximum fan speed should be typically set between 70% and 100% for optimum operating efficiency. Lower maximum fan speeds may be selected for noise control but system efficiency and capacity is compromised when the fan speed is limited too greatly.

Continuous Fan

When the thermostat fan switch is set to continuous fan, the fan will run at low speed (50% of maximum default, field adjustable). When there is a call for heating or cooling, the continuous fan call will be overridden. Once the thermostat call is satisfied, continuous fan speed will resume.

For all zoned systems, only the continuous fan signal from the Zone 1 (master zone) thermostat can be connected.

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Defrost

The CCHP systems have two modes of defrost. **Automatic defrost mode** measures the difference between outdoor air and refrigerant saturation temperature and automatically determines the desired time to defrost and the length of defrost. **Timed defrost mode** is a simplified algorithm that uses time since last defrost to trigger the next defrost. The defrost terminates based on a time interval that can be set at the control

interface or on compressor discharge temperature, which ever event comes first. It is desirable to use automatic mode under most circumstances. Timed defrost is a safety mode available for temporary use in case of a failed sensor or other cause that disrupts proper operation of the automatic defrost.

Controls and monitoring

Ecologix's cold climate heat pumps (CCHP's) all share a common control and monitoring platform.

Monitoring

The heat pumps are fully monitored internally and come with an internet gateway that provides data logging and performance collection capabilities.

With the internet connection in place, Ecologix Engineers can help trouble shoot and help the installer commission the system from our head office. The monitoring capability also allows the factory or the installer to log into the home prior to a site visit to check on the operation of the system before arriving on site. All aspects of the operation are monitored. Temperatures, pressures and operating states are logged by Ecologix over the homeowner's internet connection. This approach allows off site troubleshooting to quickly hone in on an area of concern. Knowing issues beforehand, the service technician can arrive on site to replace or repair the component of concern rather than spending time on site trying to field troubleshoot. All installers must complete either in-house or on-site manufacturer's training before installing the equipment.

Control

The CCHP control wiring strategy is designed to be as modular as possible to make service and replacement as simple as possible. All functions of the heat pump are broken into separate control boards and sensors connected by cables.

The operation of the heat pump is controlled by a heat pump controller. The operation of the system loads are handled by either an air handler control or a load manager control depending on the type of system. This allows for consistency across the entire platform of products. The same Heat pump control is used regardless of if it is an air to water or air to air heat pump and independent of if the compressor is variable frequency, digitally controlled or a two stage compressor. An installer trained on one system will be familiar with the control of the other types of systems.

Wiring

All internal and external wiring is managed through factory supplied cables so that miss wiring is eliminated as much as is possible. The equipment has a complex data collection system embedded in the control so that history on system operation can be recorded and used to optimize the system for a specific site.

Installation

Indoor Unit Location

The indoor A2A series units are not designed for outdoor installation. Provide sufficient room to make electrical and other connections.

Locate the unit in an indoor area that allows easy removal of access panels, and has enough space for service personnel to perform maintenance or repair. Provide sufficient room to make Duct

water, refrigerant and electrical connections. Avoid blocking important access panels with electrical wiring, water and refrigerant piping. Do not locate in areas where ambient conditions are not maintained within 40-100°F and below 75% relative humidity.

Install the unit on a rubber isolation pad for sound attenuation purposes. Although the

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compressor is already installed on an isolation pan inside of the unit, this additional pad will help to prevent any additional vibration noise.

Ductwork

General

Ductwork installed in unheated spaces, such as attics, must be installed between the insulation and the heated space. Provide at least R-12 of insulation above ducts. If cooling is required, the branch and trunk lines must be insulated and sealed with a vapour barrier prior to applying house insulation.

If a fresh air duct is required, make connection to return air plenum at least 6 feet upstream from filter. Insulate all fresh air ducts.

Supply Ductwork

Supply trunks may be square or round. SEAL all joints and seams with metal tape or a sealing compound. For single zoned systems, volume dampers for each of the main supply trunks must be accessible for balancing. (Near the supply plenum is preferred)

Locate outlets at least 6 inches from outside walls or window coverings.

Return Ductwork

Return air plenum should be the same cross sectional area as the air handler return air opening. A conventional return air drop and elbow is acceptable. It is recommended that the return duct/drop be acoustically lined for 6 feet nearest the air handler.

System Supplemental Heat

Hydronic Backup

The hydronic option comes with a built in circulator and plumbing lines to connect to the hot water system. Refer to the typical plumbing schematic for plumbing guidance. Be sure to install the isolation and purge valves required to purge the air from the hydronic loop. Do not block any access panel with plumbing. If you must run the water lines across an access door,

ensure a minimum of 6 inches of clearance to allow for easy removal of all door panels.

Electric Resistance Backup

This option is required to be installed in the field.

Sources of hydronic supplemental heat can be:

Wood or pellet boiler

Electric or fossil fuel fired boiler

Fossil fuel fired domestic water heater

Domestic water assist Heat Exchanger

All CCHP units come with built in desuperheater for optional domestic water assist.

A circulation pump can be installed external to the heat pump. A dry contact is provided in the electrical box to bring the pump on and off as required. The dry contact is capable of handling 24VAC or 115VAC or 240VAC to give the installer maximum flexibility in determining pump needs.

Temperature sensors and control logic to control the domestic assist cycle are built in to the heat pump control. Refer to [A2W LOAD Controller](#) user's manual that comes with the heat pump for set up and operation of the domestic assist.

Refer to the wiring diagram for typical electrical hook-up.

Outdoor Unit Location

Locate unit away from windows, patios, decks, etc. where unit operation sound may disturb home occupants or neighbours.

All outdoor modules need to be installed with sufficient space for airflow clearance, wiring, refrigerant piping, and service. A minimum of 6 feet of clearance is required in front of the unit for proper airflow. Also, the outdoor module should be installed at least 6 feet away from any appliance exhaust pipe. Do not install unit near any walkways. When the unit defrosts in the winter, ice will build up underneath and around the outdoor module.

Be sure to take the line-sets into consideration when locating the outdoor module.

Stand Alone Outdoor Unit Option

The Stand Alone Outdoor Module needs to be installed on a solid, level surface. If conditions or local codes require the unit be attached to pad,

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tie down bolts should be used and fastened through the bottom flanges of the unit legs. On rooftop applications, mount on level platform or frame. Isolate unit and tubing set from structure. Arrange supporting members to adequately support unit and minimize vibration transmission to building. Consult local codes governing rooftop applications. Install the stand-alone unit with a slight slope back or to the side to avoid draining of melted snow into the fan openings. A slope of 1/8" per foot is adequate to keep lid of unit free of free standing water.

Wall Mounted Outdoor Unit Option

Install the Wall Mounted unit at least 3 feet off of the ground on an exterior wall using the supplied mounting brackets. Do not locate wall mounted unit over walk ways or where ice can build up and create a slip hazard. Do not locate unit over ornamental bushes or house features you want buried in ice during winter operation.

Refrigerant Connections

CAUTION

Failure to follow this caution may result in equipment damage or improper operation.

- Use a brazing shield
- Wrap service valves with wet cloth or heat sink material before brazing

The outdoor module must be connected to the indoor unit using field-supplied refrigerant grade tubing of correct size and condition.

1. Run refrigerant tubes as directly as possible by avoiding unnecessary turns and bends.
2. For line sets over 50 feet, go up one nominal size to compensate for the added pressure drop.
3. Leave some slack between structure and unit to absorb vibration.
4. When passing refrigerant tubes through the wall, seal opening with RTV or other pliable silicon-based caulk.
5. Avoid direct tubing contact with water pipes, duct work, floor joists, wall studs, floors and walls to prevent the likelihood of vibration.
6. Do not suspend refrigerant tubing from joists and studs with a rigid wire or strap which comes in direct contact with tubing.
7. Ensure that tubing insulation is pliable and completely surrounds vapor tube.

8. When necessary, use hanger straps that

WARNING

Personal Injury And Unit Operation Hazard-

Failure to follow this warning may result in personal injury or death.

Relieve high pressure nitrogen charge from the outdoor module before cutting the lines to connect to indoor unit.

- conform to shape of tubing insulation.
9. Isolate hanger straps from insulation by using metal sleeves bent to conform to shape of insulation.
10. Insulation is required on all piping inside of the building envelope with at least an R-2.
11. For A2W-540-D insulate an additional R-2 on both vapour and liquid lines. This is most easily achieved by running both lines close together then double rapping with pipe insulation around both pipes. Make sure to seal all joints in both layers of insulation to ensure that there are no condensation issues.
12. Do NOT use insulation that is not rated for refrigerant use! Refrigerant lines get hot enough to melt regular plastic plumbing pipe insulation.
13. Do not crush the insulation with strapping. It will reduce the R-value at that point.
14. Insulation is not required on the liquid and vapour lines outside of building to the outdoor module.

It is important to install a drip loop on both lines outside just before they enter the building. This will prevent condensate from running along the tubing into the building.

Outdoor unit comes charged with nitrogen

Once you have relieved the nitrogen charge from the outdoor unit, dry fit both the liquid and vapour refrigerant lines between the indoor and outdoor unit and prepare for brazing. Make sure open lines and outdoor coil are capped to prevent contamination of the system until you are ready to braze.

Connect the vapour and liquid tubes to the correct service valve inside of the indoor unit. Again, be sure to use refrigerant grade tubing. Service valves are closed from factory and ready for brazing. Wrap service valves with a wet rag and braze the sweat connections using industry accepted methods and materials. Next, make the sweat connections at the outdoor unit. It is important to run nitrogen through the open

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portion of the system while brazing. Wrap all filter driers and service valves with wet cloth when brazing.

Once all of the connections are made, the outdoor module and line sets are ready for a leak test.

CAUTION

Unit Operation Hazard- Failure to follow this caution may result in equipment damage or improper operation.

Do not leave system open to atmosphere any longer than necessary for installation. POE oil in compressor is extremely susceptible to moisture absorption. Always keep ends of tubing sealed during installation.

Once the leak test has passed, refrigerant tubes and outdoor coil must be evacuated using the recommended deep vacuum method down to 400 microns. Once this vacuum level is achieved, the service valves inside of the indoor unit can be opened to distribute the pre-charged refrigerant throughout the system.

Be sure to use a wrench to back the service

WARNING

ELECTRICAL SHOCK HAZARD

To avoid possible injury or death due to electrical shock.

The unit cabinet must have an uninterrupted or unbroken ground to minimize personal injury if an electrical fault should occur. The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes.

valves when opening.

Never open system to atmosphere while it is under a vacuum.

Electrical

When running both power and control wiring, be sure not to block any access panels.

Electrical - LINE Voltage

General Line Voltage Wiring

Be sure the available power is the same voltage and phase as that shown on the unit serial plate. Line and low voltage wiring must be done in

CAUTION

Failure to follow this caution may result in personal injury, equipment or environmental damage or improper operation.

Do not overcharge system with refrigerant
Do not operate unit in a vacuum or at negative pressure

Do not disable low pressure switch

Dome temperatures may be hot

Wear safety glasses, protective clothing, and gloves when handling refrigerant.

Federal regulations require that you do not vent refrigerant to the atmosphere. Recover during system repair or final unit disposal.

Charging refrigerant

Systems are factory charged for 25 feet of line set. Adjusting the amount of refrigerant for desired sub cooling is covered in the procedures contained in the **Ecologix Commissioning Report Form** for CCHP systems. All model CCHP units require the system to be commissioned after installation and before putting into service.

ONLY add or remove refrigerant if it is determined from the commissioning that the system is under or overcharged.

If refrigerant is needed, system should be charged with liquid refrigerant. Use a commercial type metering device in the manifold hose when charging into suction line with compressor operating.

When system must be opened for service, recover refrigerant, evacuate then break vacuum with dry nitrogen and replace filter driers.

Evacuate to 400 microns prior to recharging.

Do not vent refrigerant into the atmosphere.

accordance with local codes or the National Electrical Code whichever is applicable.

Indoor Unit Power Connection

Line voltage connection is made by connecting the incoming line voltage wires to the "Line" side of the contactor or the power block depending on the specific heat pump model. Refer to the wiring diagram located on the

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electrical panel door of the unit. Wiring diagrams are also included at the beginning of this manual.

WARNING

To avoid possible injury or death due to electrical shock, disconnect power during installation.

Outdoor Unit Power Connection

Provide a disconnect at the outdoor unit as required by Code.

Power for outdoor unit may be brought from the indoor unit from terminal lugs provided or can be supplied from a separate circuit form the panel.

Domestic water assist pump

Provide a separate power supply for the field supplied pump. Follow suggested wiring diagram for pump provided in this document.

Field Wiring

All field installed wiring, including electrical ground, must comply with the National Electrical Code as well as all applicable local codes.

Refer to the unit wiring diagrams for fuse sizes and a schematic of the field connections that must be made by the installing (or electrical) contractor.

Consult the unit wiring diagram provided with the equipment or located on the inside of the compressor access panel to ensure proper electrical hookup.

All final electrical connections must be made with a length of flexible conduit to minimize vibration and sound transmission to the building.

Electrical – LOW Voltage

Thermostat Connections

The thermostat or set point control should be wired directly to the terminal board in the unit. Refer to wiring diagrams provided with the unit. The CCHP expects a standard heat / cool thermostat. Do not use a heat pump thermostat without contacting the factory for instructions on how to wire and apply.

2nd stage of two stage thermostat can be used to energize W2 (emergency heat) or the emergency heat call can be ignored at the thermostat and the unit will automatically initiate emergency heat as required. Please refer to AH Control documents for programming air handler control on unit.

Control and communication cable between indoor and outdoor unit.

A 25 foot control cable is provided with each unit for connecting the indoor and outdoor unit. DO NOT SPLICE OUR EXTEND WIRES. If the distance between the indoor and outdoor unit necessitates a longer cable, please order the required length at time of purchase.

Start Up Procedures

Initial Check

Do NOT start the heat pump until you have checked the following:

1. All Hydronic loops are filled and purged.
2. All refrigerant connections between the indoor unit and outdoor module have been brazed and leak test was passed.
3. Both the liquid and vapour service valves have been open.
4. The field power and control wiring has been done in accordance to the wiring diagrams provided.

If a separate hydronic backup water coil is used for air handlers attached to the hydronic loop, ensure that the plumbing and water heater have been properly installed and that all air has been purged from the secondary loop.

Commissioning report

Upon system start up, follow and completely fill in the **Ecologix Commissioning Report** form. Follow instructions on the form for testing the unit and optimizing the refrigerant charge.

Defrost Test

In cold weather, the defrost cycle can be easily checked by waiting until the unit goes into defrost. Observe the amount of ice built up on the coil at the start of defrost and again at the end of defrost to make sure the system initiates defrost only after ice has formed and ends defrost only after ice has cleared.

In warmer weather defrost can only be tested by setting the defrost set point above the outside temperature for the period of the test then setting the value back when the test is complete.

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If the outdoor temperature is below the defrost set point (DEF_SETP), a defrost cycle can be initiated for test purposes by unplugging the saturation sensor at the outdoor unit while heating mode is on. This would trigger a call for

defrost in automatic defrost mode. See ASHP User Manual for more details on adjusting and testing system controls and testing defrost.

Service and Maintenance

Indoor unit

At the start of each cooling season, check the drain connection to the refrigerant coil to ensure it is free of debris. If a plugged coil is suspected, call a service technician for testing and cleaning.

Outdoor Fan

Check outdoor fan twice a year to ensure proper operation. Clear any obstruction or debris. It is important to periodically check the outdoor coil to ensure there is no debris blockage. Losing a portion of the outdoor coil can have a significant impact on the system performance.

Compressor

It is recommended to conduct annual amperage checks to ensure current draw is no more than 10% greater than that indicated by serial plate data.

Cabinet

Generally, all cabinets are set up from the floor a few inches on an isolation pad for sound control. This will ensure long life and a cabinet free of

corrosion. The cabinet can be cleaned using a mild detergent.

Refrigerant System

To maintain sealed circuit integrity, do not install service gauges unless unit operation appears abnormal. Verify that air flow rates are at proper levels before servicing the refrigerant circuit.

Maintenance for forced air system

Check filters at least every three months. Replace at least every six months for single use filters. Wash every three months for washable filters and replace at least once every three years.

If the installation is located in an area with a known high dirt or debris content, it is best to establish with the owner a periodic maintenance schedule so the coil can be checked regularly. If periodic coil cleaning be necessary, use standard coil cleaning procedures which are compatible with both the heat exchanger material and copper lines.

Unit & System Checklist

Item	Description	Done
1	Ensure Voltage is within an acceptable range for the unit and wiring and fuses/breakers are properly sized. Check low voltage wiring is complete	<input type="checkbox"/>
2	Ensure transformer has properly selected control voltage tap. 208-230V units are factory wired for 230V operation unless specified otherwise.	<input type="checkbox"/>
3	Check internet connection at unit to confirm gateway communication is working. If all lights are not on, please contact Ecologix for help troubleshooting connection.	<input type="checkbox"/>
4	Test thermostat to ensure each call is functioning as expected. If multi-zone system, test each thermostat separately and with all zones calling.	<input type="checkbox"/>
5	Test indoor and outdoor unit sensors are functioning by reading sensors at controller display, comparing to hand held thermometer. Test defrost control is working by triggering defrost cycle in heating mode. (see Defrost , above)	<input type="checkbox"/>
6	Check filters are in place for forced air systems	<input type="checkbox"/>

A2A Series Heat Pump

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Warranty

This product is warranted by Ecologix Heating Technologies Inc. (EHT) to be free from defects in materials and manufacturing workmanship that affect product performance under normal use and maintenance within the applicable periods specified below. Replacements furnished will carry only the un-expired portion of the original warranty. This warranty covers Ecologix A2W series heat pumps, both the indoor unit and outdoor module.

Two-Year Parts & Labor for All Parts

EHT will provide replacement parts and labor costs for any part that fails within two years of purchase, subject to the **terms** below.

Five-Year Parts & Labor for Major Refrigerant Circuit Components

EHT will provide replacement parts and labor costs for any major refrigerant circuit component (compressor, heat exchangers, expansion valve and reversing valve) that fails within five years of purchase, subject to the **terms** below.

Ten-Year Compressor (parts only)

EHT will provide a replacement for any compressor installed in an Ecologix A2W series system that fails within ten years of purchase, subject to the **terms** below.

Terms

- ❖ Reasonable proof of original purchase date must be provided in order to establish the effective date of the warranty, failing which, the effective date will be based on the date of manufacture plus thirty days.
- ❖ The warranty does not cover failure or damages caused by:
 - improper installation or operation
 - accident, abuse or alteration
 - operation of device at temperatures or pressures outside of the rated capacities
 - lime or scale deposits
 - corrosive operating environment
 - equipment moved from original installation location
- ❖ Replacements furnished under this warranty will be F.O.B. Ecologix Heating Technologies Inc product distribution points in the United States and Canada. They will be invoiced at regular prices. The account will be credited the full amount when the defective part is received by Ecologix, examined and approved as a valid warranty.
- ❖ Warranty applies to the original purchaser, but may be transferred to another owner provided the equipment is not moved from the original installation site.
- ❖ This warranty does not apply to freight, transportation or any other cost associated with the service, repair or operation of the product.
- ❖ Where labor is included above, EHT will provide reimbursement (in the form of credit to the claimant's account) of labor costs to the installer, as specified in the Ecologix Heat Pump Warranty Allowance Schedule in effect at the time of system installation.
- ❖ Ecologix shall not be liable for any direct, special, incidental or consequential damages caused by the use, misuse, or inability to use this product.
- ❖ Ecologix is under no legal obligations to rectify, including but not limited to, lost profits, downtime, good will, damages to, or replacement of equipment and property
- ❖ Purchaser assumes all risk and liability of loss, damage or injury to purchaser and purchaser's property and to others and their property arising out of the use, misuse or inability to use this product.
- ❖ These terms are subject to change on future sales at any time and without notice.